



Hawaii Renewable Energy Development Venture:

A Project of PICHTR

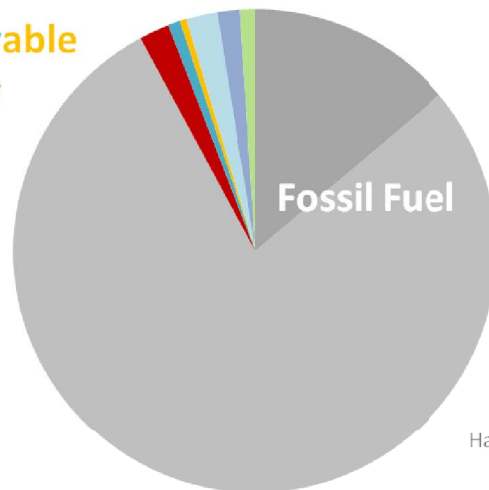
USDA-Navy Industry Forum
April 6, 2010
Honolulu, HI

The challenge: Hawaii is dependent on oil for 90% of its energy needs

Electricity

■ Coal ■ Oil ■ Geothermal ■ Hydro ■ Solar ■ Wind ■ Municipal Solid Waste ■ Biomass

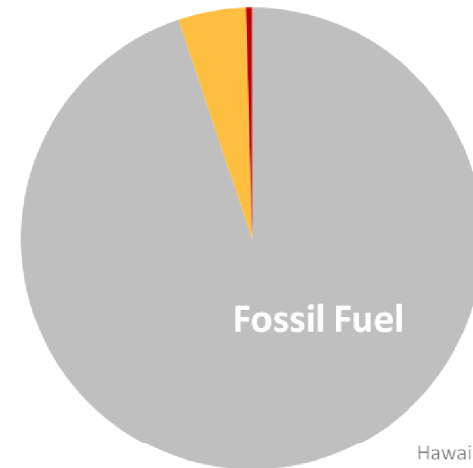
Renewable
Energy



Hawaii Electricity Sector
2007 Net Generation
Source: EIA

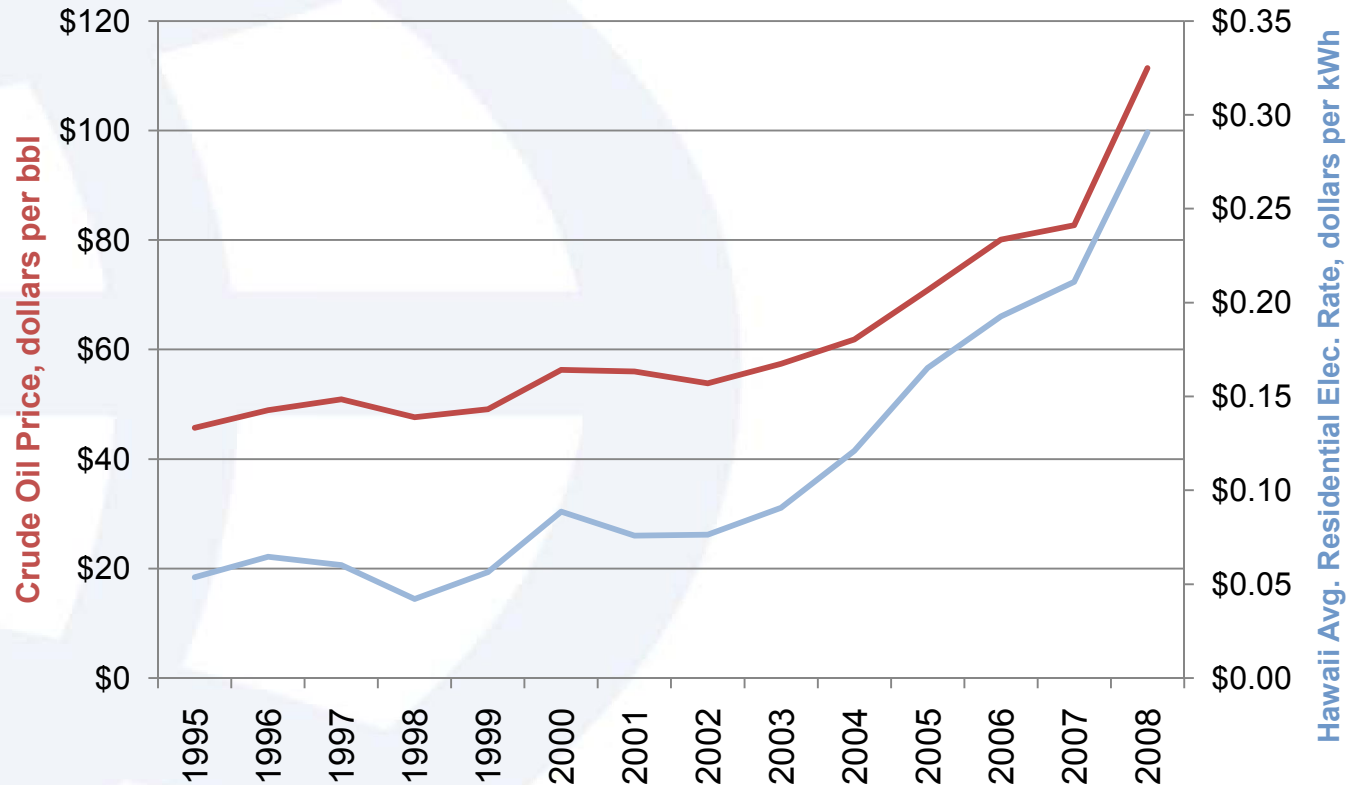
Transportation

■ Oil ■ Ethanol ■ Biodiesel



Hawaii Transportation Sector
2008 Fuel Use
Source: State of Hawaii Data Book

Volatility in the price of oil triggers volatility in the local price of electricity

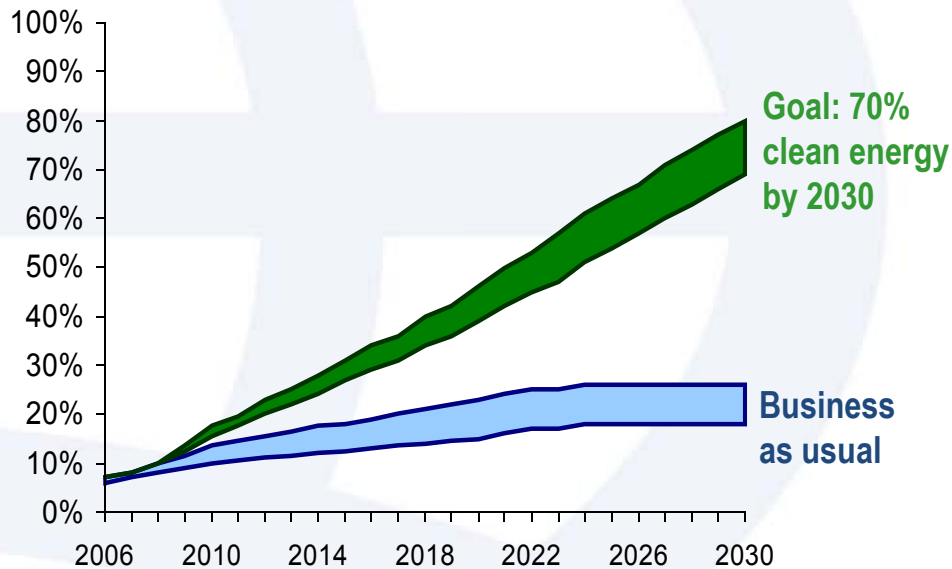


Source: EIA Spot Prices for Crude Oil and Petroleum Products, released 1/6/2009, DBEDT Databook

U.S. Department of Energy (DOE) & the State created the Hawaii Clean Energy Initiative to change this paradigm



Percent clean energy – electricity and transportation



The opportunity: This transformation presents enormous market potential

Avg. Crude Oil Price (2008-2030) per Barrel	Investment Cost	PV of Investment Cost	Savings from Oil Displaced	PV of Savings from Oil Displaced
\$100	\$ 18.1	\$ 9.1	\$ 49.3	\$ 20.0

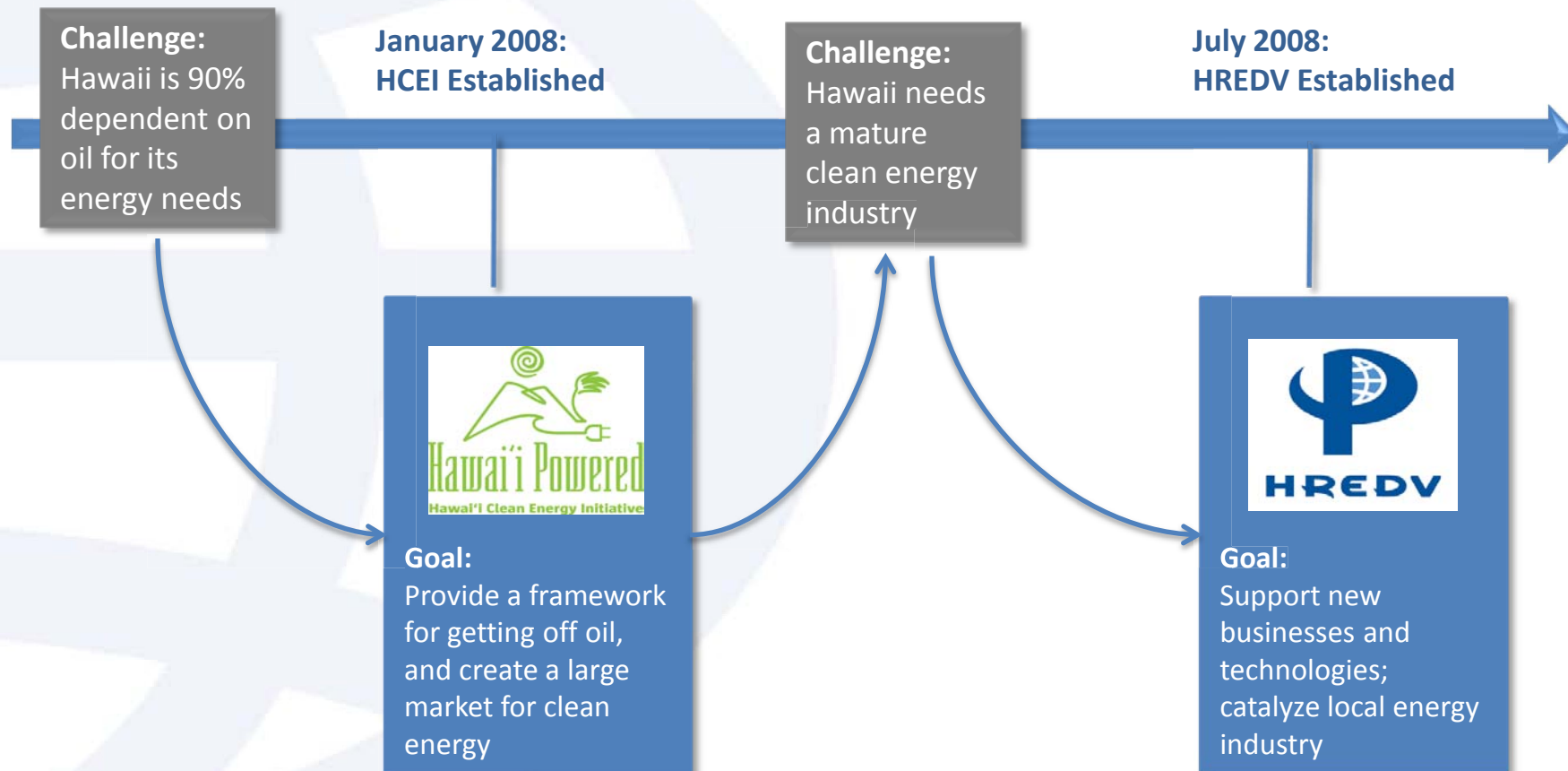


What companies, technologies, and projects will deliver the \$18 billion of investment needed?



Source: DOE analysis for Hawaii Clean Energy Initiative

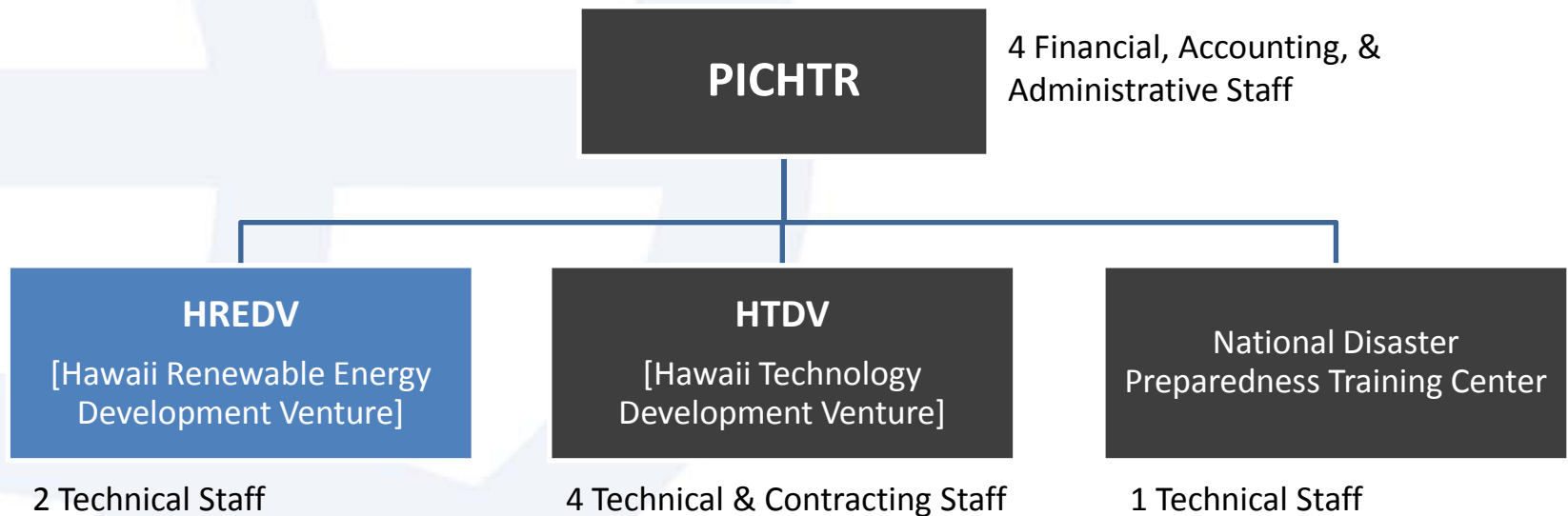
HREDV was created to support development of a strong clean energy industry in Hawaii



HREDV is a project of PICHTR, the Pacific Int'l Center for High Technology Research



PICHTR is a non-profit organization, founded in 1983 to serve as a hub for Pacific Rim technology development

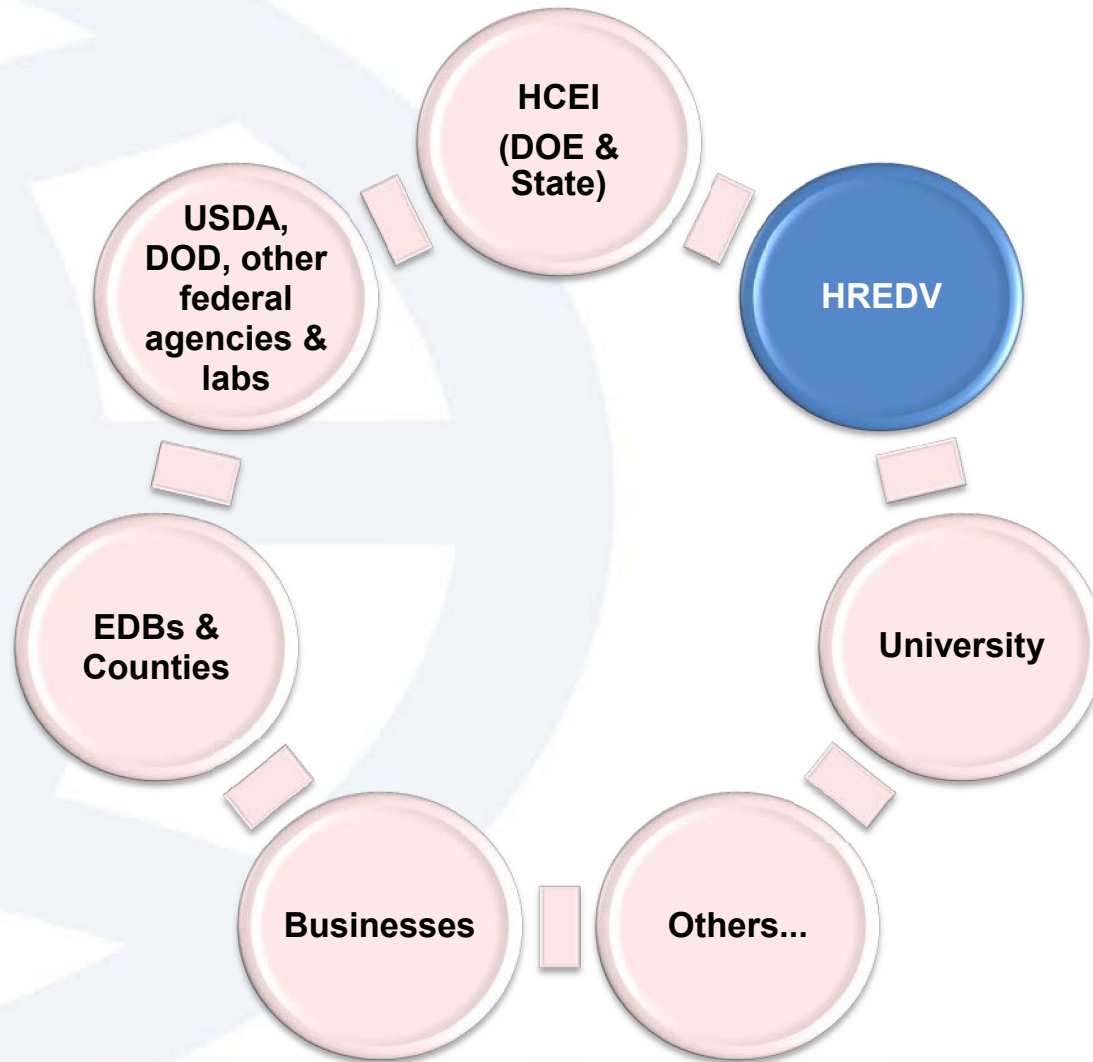


HREDV is funded by the U.S. DOE

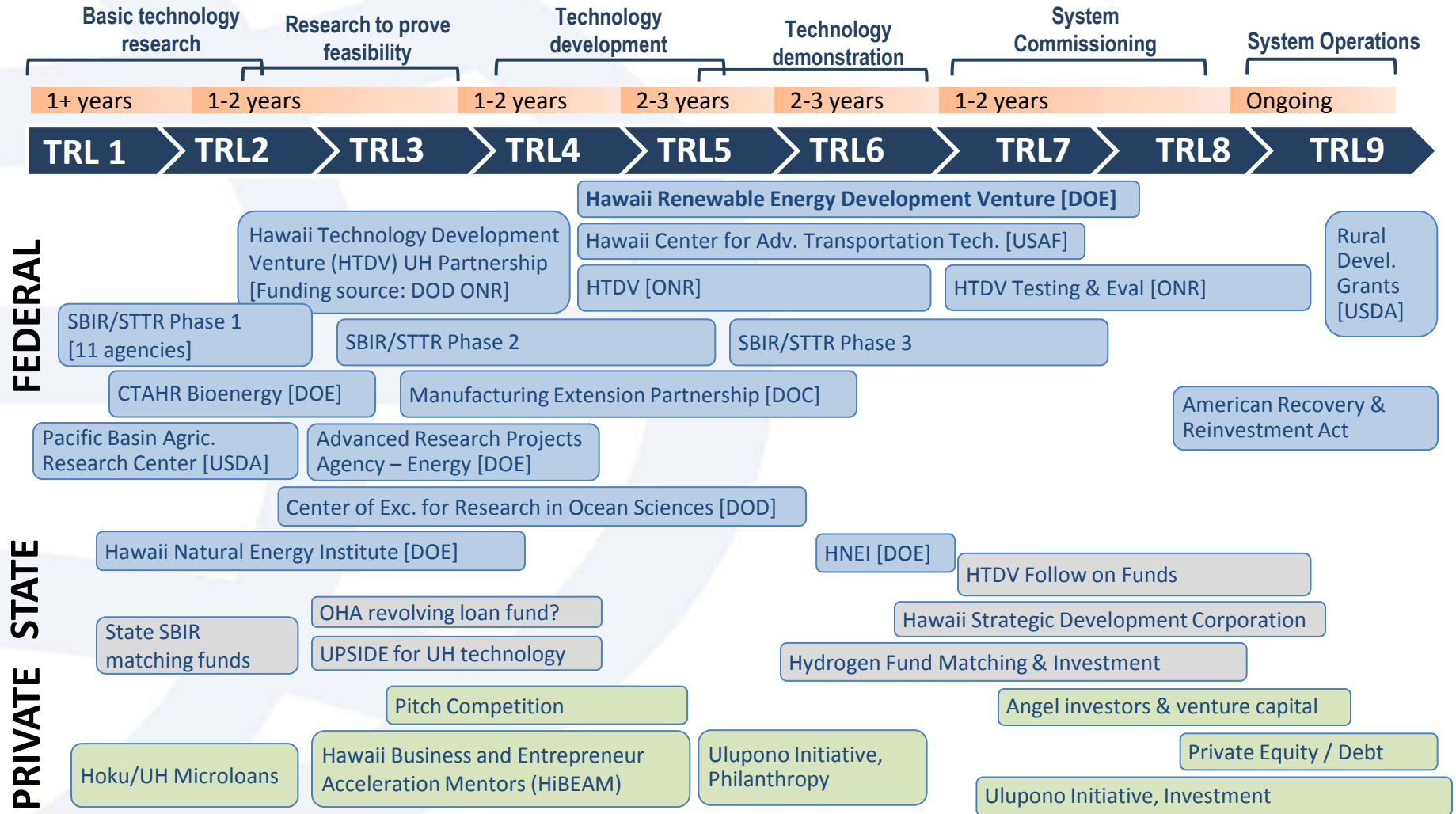


Project Year	DOE Funding	Key HREDV Activities
FY 2008	\$1.2 M	Phase 1. Develop project Roadmap
FY 2009	\$3.8 M	Round 1 solicitation \$2.4 M ; selected five pre-commercial technologies with awards up to \$500K Training
FY 2010	\$6 M	<i>Planned:</i> Round 2 solicitation \$5 M ; awards up to \$1 M; Ramp up training and outreach

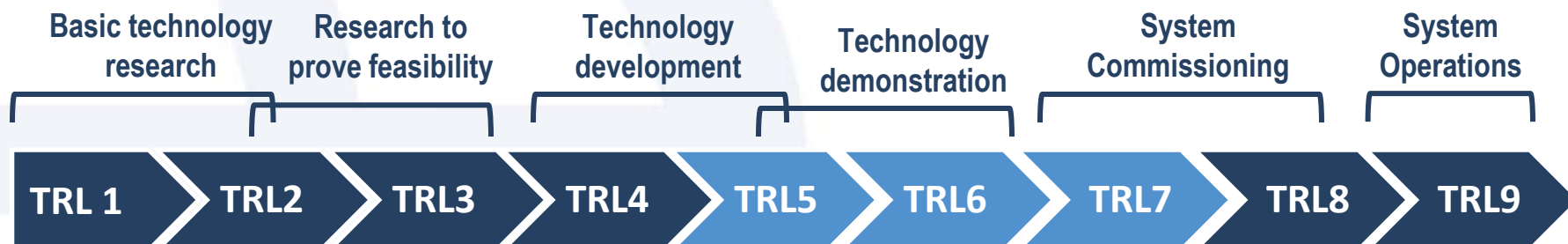
HREDV works with many partners who are committed to Hawaii's energy transformation



Each partner provides a unique resource for science & tech development in Hawaii



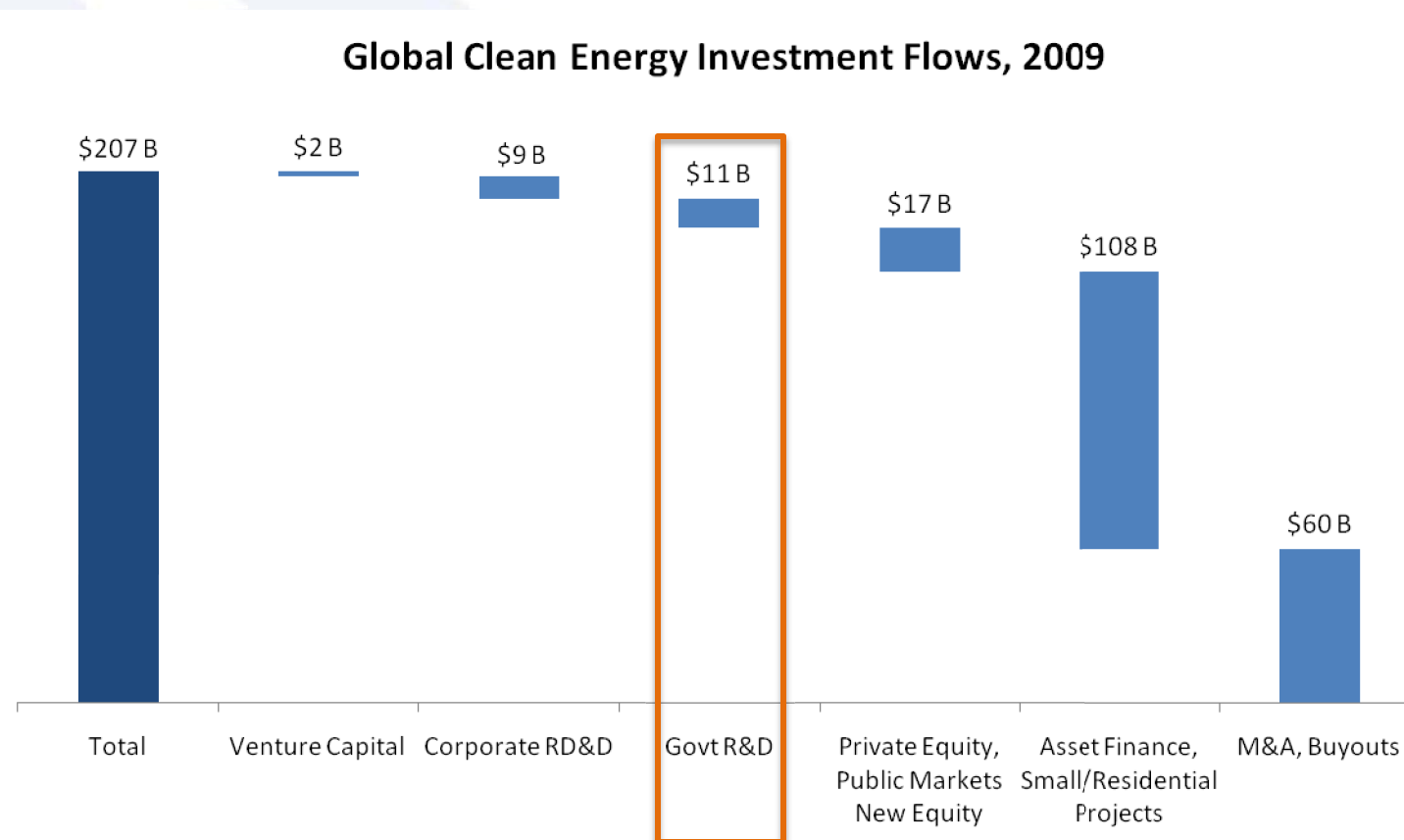
HREDV has a defined role: working with businesses to commercialize technologies



HREDV targets businesses with pre-commercial technology

U.S. DOE commercialization pathway based on Technology Readiness Levels

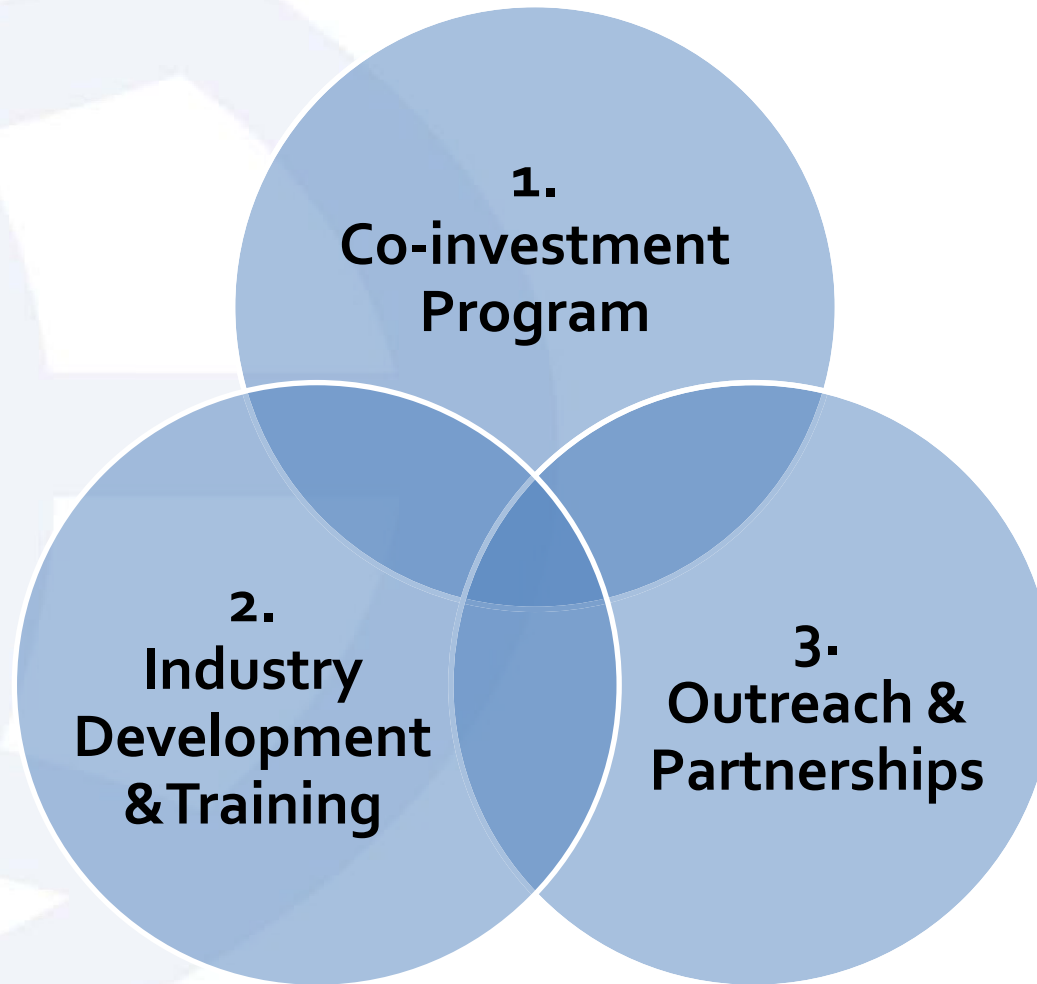
The role of HREDV is to serve as a catalyst for private investment in Hawaii clean tech



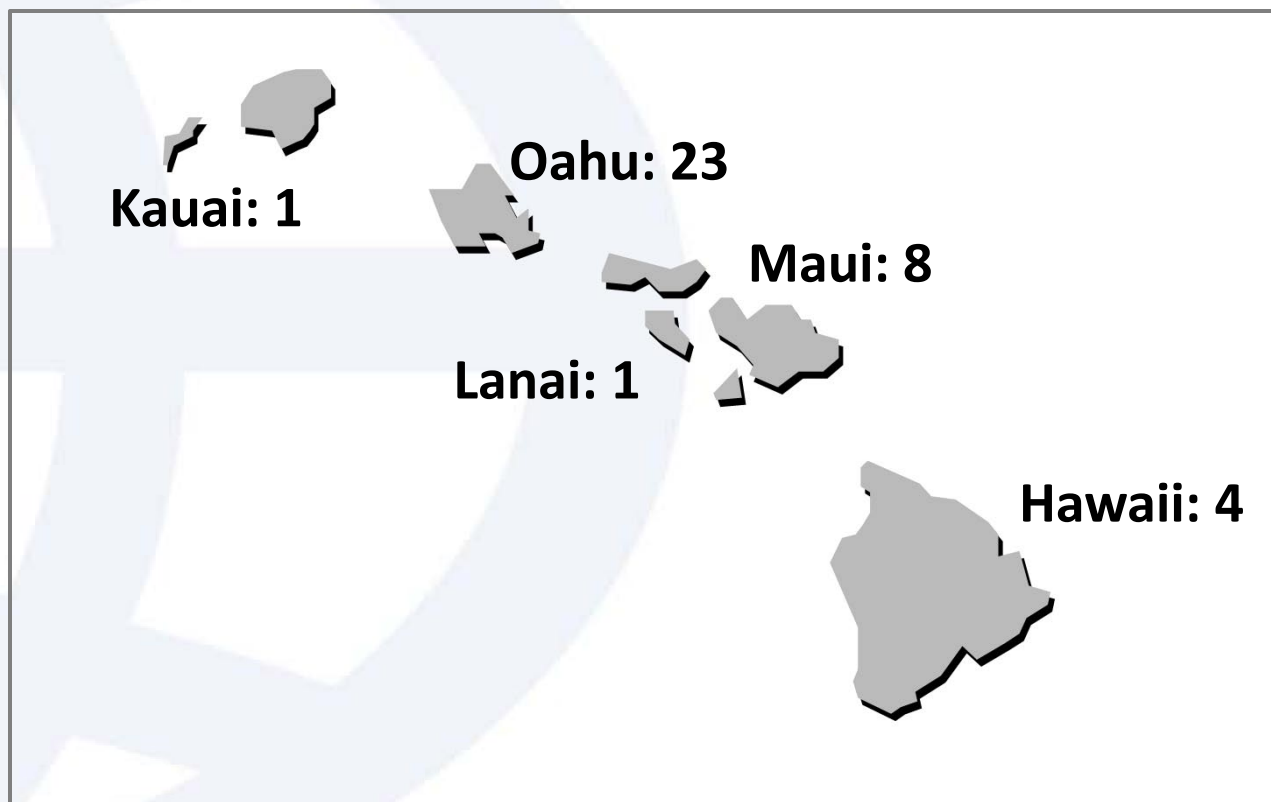
Governments have a relatively small piece of overall clean tech investment. The strategy of HREDV is to use government funding to leverage private funds in commercializing high-risk emerging technologies.

Source: New Energy Finance

HREDV focuses on three main activities



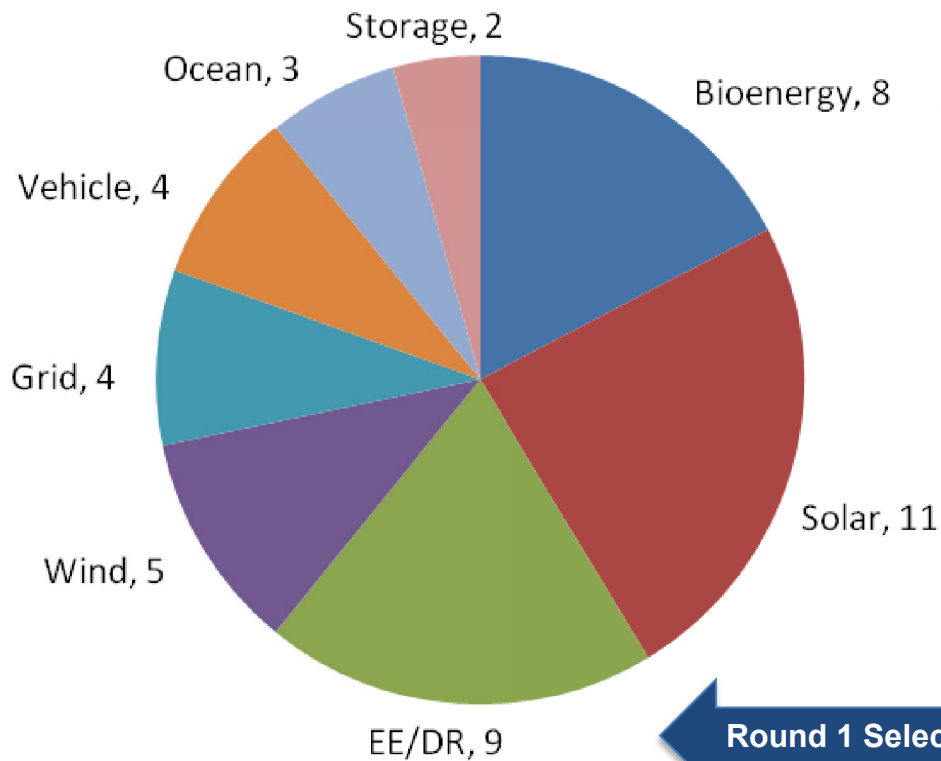
Responses to the 2009 HREDV RFP covered all major islands



Responses to the RFP covered a wide range of technologies; HREDV selected five projects



Technology of All Proposed HREDV Projects
(Some projects involve more than one technology)



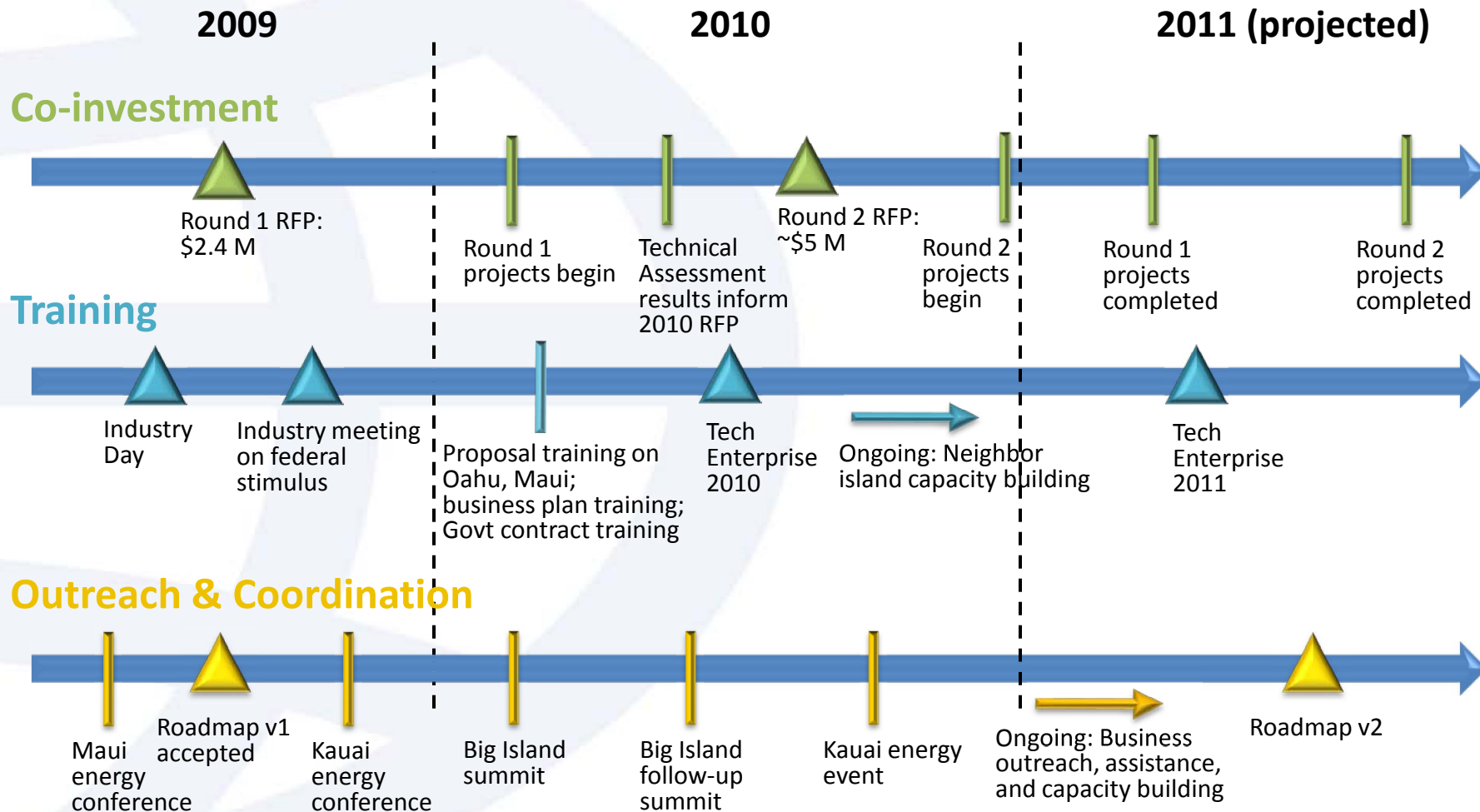
Emerging areas of interest for 2010 co-investment: RFP targeted summer 2010

1. Transportation (Biofuels, advanced vehicles, etc.)
2. Clean energy for agriculture
3. Integration of renewable energy



Bioenergy connection

HREDV activities will be accelerating through 2010 and beyond



How can you engage with HREDV?



- **Participate in events** and industry meetings (June 24 Tech Enterprise)
- **Submit proposals** to HREDV (Next round in summer 2010)
- **Register for trainings** offered locally (e.g., government contracting)
- **Reach out** to tell others in your community about the benefits of clean energy
- **Visit HREDV online** at www.hawaiiirenewable.com, and share your ideas with us

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